

REMARKS

Reconsideration in view of the foregoing remarks, and entry of this paper, is respectfully requested. Additionally, it is respectfully asserted that this paper is responsive to all points raised in the Final Office Action.

I. Status of the Claims

Claims 1-10, 16-25, and 36-43 are pending. Claims 1, 7, 10, 16, 22 and 25 have been amended. Claims 11-15 and 26-35 have been cancelled without prejudice, in the Applicant's Amendment of December 20, 2004.

Claims 1, 7, 10, 16, 22 and 25 have been amended to add commas after the word "and", for correct grammar. Accordingly, these amendments address formalities only and are not substantive.

II. Allowable Subject Matter

The Applicants note the allowable subject matter of claims 10 and 25.

III. General Comments On Rejections Of The Claims

Initially, in the Final Office Action, the rejection under 35 USC 102(e) was directed to claims 16-24, 38 and 41, while the rejection under 35 USC 103(a) was directed to claims 1-9, 36, 37, 39, 40, 42 and 43. Upon review of the claims, and their respective dependencies, it is believed that the rejection under 35 USC 102(e) was intended for claims 16-24 and 38-43, and the rejection under 35 USC 103(a) was intended for claims 1-9, 36 and 37. The applicants have

grouped the claims in this manner when discussing the rejections, these discussions appearing immediately below.

IV. Rejections Under 35 USC 102(e)

Claims 16-24, and 38-43, were rejected under 35 USC 102(e) as anticipated by Peless, et al. (U.S. Patent No. 6,615,108) (Peless '108).

Claim 16 recites a method for coverage of an area by an autonomous machine that scans a first portion of the area, analyzes the first portion for an opening to a second portion of the area, and moves along a path proximate to the periphery of the first portion to and through the opening to the second portion of the area. As a result of this method, for example, the autonomous machine can seek openings in order for its continuous operation to cover an entire area, for example, a room.

Peless '108 is directed to an autonomous machine that scans the area in accordance with a predetermined scanning pattern, turning when boundary markers or obstacles are encountered. Scanning is such that when obstacles are detected, scanning continues behind the obstacle. When scanning behind the obstacle is complete, the autonomous machine resumes its previous scanning, and continues to scan in accordance with its scanning pattern, absent any travel along a path at least proximate to the boundary of any scanned location.

The claimed invention is different from Peless '108. The claimed method includes analyzing the first portion of the of the area scanned for an opening to second portion of the area, and then moves the autonomous machine along a path proximate to the periphery of the first portion to reach and move through the opening, to the second portion of the area.

Moreover, in response to the Examiner's argument in the Final Office Action, the scanning pattern shown by the arrows 56 is a scanning pattern of generally straight parallel lines with respect to a marked obstacle 50. It has nothing to do with analyzing a portion for an opening, and moving through an opening, as with the claimed invention.

Based on the above, Peless '108 does not show the method of claim 16. Accordingly, claim 16 is not anticipated by Peless '108, under 35 USC 102(e).

Additionally, since Peless '108 is silent as to the robot finding an opening and traveling in a path at least proximate to the boundary, this reference fails to teach or suggest the claimed invention. Accordingly, claim 16 is also non-obvious under 35 USC 103(a) in view of Peless '108.

Since claim 16 is not anticipated by Peless '108 under 35 USC 102(e), nor obvious under 35 USC 103(a), claims 17-21, and 38-40, dependent thereon, are also not anticipated under 35 USC 102(e) or rendered obvious by Peless '108, under 35 USC 103(a) for the same reasons. These claims further distinguish the claimed invention over the cited art.

Claim 22 recites a method for area coverage by an autonomous machine that scans a portion of the area from a first point, moves along a path proximate to the periphery of this scanned portion to a second point, having a location different than that of the first point, and, scans a portion of the area from the second point.

Peless '108 has been discussed above. That discussion is applicable here. As discussed above, the autonomous machine scans in accordance with a predetermined pattern. At no time does it move along a path proximate to the periphery of the scanned portion, when moving to a new location for scanning.

Moreover, in response to the Examiner's argument in the Final Office Action, that the autonomous machine moves along a path proximate to the periphery of the scanned portion, it is respectfully asserted that what the examiner cites is not peripheral movement. Rather, it is the turning of the autonomous machine upon encountering a marked obstacle, so that it can continue its scanning in generally straight parallel lines.

Accordingly, Peless '108 does not show the method of claim 22, and as such it does not anticipate claim 22 under 35 USC 102(e).

Additionally, since Peless '108 is silent as to the robot traveling in a path at least proximate to the boundary, this reference fails to teach or suggest the claimed invention. Accordingly, claim 22 is also non-obvious under 35 USC 103(a) in view of Peless '108.

Since claim 22 is not anticipated by Peless '108 under 35 USC 102(e), nor obvious under 35 USC 103(a), claims 23-25 and 41-43, dependent thereon, are also not anticipated under 35 USC 102(e) or rendered obvious by Peless '108, under 35 USC 103(a) for the same reasons. These claims further distinguish the claimed invention over the cited art.

V. Rejections Under 35 USC 103(a)

Claims 1-9, 36 and 37, were rejected under 35 USC 103(a) over Peless '108 in view of Jones, et al. (U.S. Patent No. 6,690,134) (Jones '134).

Claim 1 is directed to an apparatus including a drive system and a controller including a processor programmed to: provide at least one scanning pattern for a first portion of the area, analyze the first portion for an opening to a second portion of the area, and signal the drive system to move along a path proximate to the periphery of the first portion to and through the opening to the second portion of the area.

Peless '108 has been discussed above. That discussion is applicable here. As discussed above, Peless '108 fails to show, teach or suggest any structure for analyzing the first portion for an opening to a second portion of the area, and that moves the apparatus along a path proximate to the periphery of the first portion, to reach and move through the opening to the second portion of the area. Moreover, Peless '108 is silent on these features.

Additionally, as discussed above, that discussion applicable here, the Examiner's citations to Peless '108 fail to disclose analyzing a portion for an opening, and moving through an opening, as is performed by the claimed invention.

Jones '134, cited to teach a drive system and a controller having a processor, fails to cure the deficiencies of Peless '108, as it is directed to structure for robot confinement. Moreover, Jones '134 fails to show, teach or suggest any structure for analyzing the first portion for an opening to a second portion of the area, and that moves the apparatus along a path proximate to the periphery of the first portion, to reach and move through the opening to the second portion of the area.

Based on the above, the Examiner's proposed combination of Peless '108 and Jones '134 falls short of the claimed invention. Accordingly, claim 1 is non-obvious under 35 USC 103(a) in view of the cited art.

Since claim 1 is non-obvious under 35 USC 103(a), in view of the cited art, claims 2-6 and 36, dependent thereon, are also non-obvious under 35 USC 103(a), for the same reasons. These claims further distinguish the claimed invention over the cited art.

Claim 7 is directed to an apparatus for operation over an area including a drive system, and a controller including a processor programmed to: provide at least one scanning pattern for a portion of the area from a first point, signal the drive system to move along a path at least

proximate to the periphery of the scanned portion to a second point, different than the first point, and provide at least one scanning pattern from the second point.

Peless '108 has been discussed above. That discussion is applicable here. As discussed above, Peless '108 fails to show, teach or suggest any structure for signaling the drive system to move along a path at least proximate to the periphery of the scanned portion, as it is silent on this feature.

Additionally, as discussed above, that discussion applicable here, the Examiner's citations to Peless '108 fail to disclose that the autonomous machine moves along a path proximate to the periphery of the scanned portion.

Jones '134, as discussed above, that discussion is applicable here, is also silent as to any structure for signaling the drive system of the robot to move the robot along a path at least proximate to the periphery of any location that it covered.

Based on the above, the Examiner's proposed combination of Peless '108 and Jones '134 falls short of the claimed invention. Accordingly, claim 7 is non-obvious under 35 USC 103(a) in view of the cited art.

Since claim 7 is non-obvious under 35 USC 103(a), in view of the cited art, claims 8-10 and 37, dependent thereon, are also non-obvious under 35 USC 103(a), for the same reasons. These claims further distinguish the claimed invention over the cited art.

VI. Conclusion

Should the Examiner have any question or comment as to the form, content or entry of this paper, the Examiner is requested to contact the undersigned at the telephone number below.

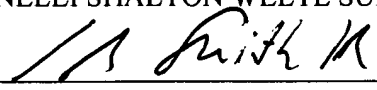
Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Entry of this paper and allowance of all pending claims, 1-10, 16-25 and 36-43, is respectfully requested.

Respectfully submitted,

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